

FEBRUARY 27, 1922

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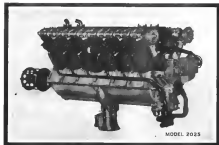
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Vol. XII

FEBRUARY 27, 1932

No. 2

Heroes of Peace

PEACE brings a return to normal in all military and naval operations except in the air service. It is here that the heroisms are not confined to warlike. New development is necessary and one of the inevitable results of progress is to be seen in the sad fate of those who made their last flight with the Botta.

The youth of the United States will always contain pages of brilliant achievements in the air. These are not confined to warlike alone. Our early pioneers of flight made their lives willingly to advance their chosen art. It will ever be so with the men who use the heavens and add their part to the world's knowledge. These brave comrades of the air who have lost their lives in the Botta accident have gained the glory that comes from having given their all in the advancement of our country's national security.

This was our triumph. We took pride in their achievements and sacrifices. We now have our heads in sorrow over their approach and realize in that the greatest of all tragedies of our air heroes.

International Research and Experimentation

THE first bombing tests of the Virginia Capes were complete, conclusive evidence of the tremendous possibilities of the airplane as a military weapon. It is here that the effectiveness of the several powers to act their aerial progress can be clearly traced in the results of these bombing tests.

Yet aerial warfare is in its infancy. For example, the great bombing tests were carried on under 20,000 ft. altitude was still very low as compared to the modern bombing heights. Even though the highest altitude that these bombing airplanes—the Martin Bompoms—could reach was 10,000 or 15,000 ft. there is a definite bombing that would have been visible from the ground and subject to observation. Since these tests the supercharges principle has been applied to the Martin Bompoms and they have flown that airplane to an altitude of 77,000 ft.—the highest point ever reached by a multi-engine aircraft of this size.

The tremendous importance to the country of this fundamental research work which has been so successfully carried on at McCook Field can not be over estimated.

Now that our bombing planes can fly above 25,000 ft. and then be completely invisible from the ground and therefore safe from anti-aircraft fire, it remains for the Air Service Engineers to make the problem of developing a bomb which which will make it possible to do accurate and certain bombing from this tremendous altitude. Certainly a bomb has been developed for guns to shoot at this range. No one can question the possibility of developing a bomb that will do this new thing.

The people of this country are concerned of the importance

of the military and commercial development of the airplane. Congress should recognize the work that has been done by the Air Service and the important importance to this country in holding together the different research organizations now in existence at McCook Field and show the proper funds to continue to carry on this important work.

What is a Subsidy?

THERE is a popular belief that the genius of the American people is unaccountably opposed to subsidies in any particular industry, but there is nothing in the past history of the United States to indicate that is the case. The primitive belief is nothing but a subsidy, every industry in a subsidy, and even some from those industrial goods there has been frequent legislation in the past to assist railroads, the merchant marine and other enterprises judged to be essential to the public welfare. A particularly notable instance is the allotment of numerous amounts of the public domain to the so-called land-grant railroads in the early days of the opening up of the West.

The most fundamental objection to a subsidy seems to arise from the general feeling that any move in the direction of subsidization of an industry means an expenditure of public wealth, the appropriation of some large sum in these days of huge governmental budgets. This feeling, however, in the case of aircraft, like the belief as to the absence of subsidies in the past, is not founded on facts. The subsidy expenditures of American nations which great governmental assistance to companies operating commercial airlines are extraordinarily small, and it is astonishing to see how much can be done with a moderate appropriation. The French government, for example, expended in behalf of civil aviation during the last complete fiscal year only 250,000,000 (250,000,000). The French republic allotted to airplane subsidies in the same period 35,000,000 francs (\$1,500,000) and this sum was sufficient, as is well known, to keep lines operating between Paris and London, Paris and Brussels, Paris and Warsaw; Bordeaux and Amsterdam; Marseilles and Montpellier; and Toulouse and Combes, in addition to several shorter or international routes. The Deutsche Luftreederei received a subsidy from the Reichsamt for German government of approximately 15,000,000 marks, or \$300,000 at the rate of exchange then ruling, and ran lines all over Germany as a result.

A subsidy policy for the United States may be severe or even onerous, but it should not be deemed to an extravagant expenditure, as practically every nation in Europe has come to subsidization of one sort or another and so it is evident from that fact and from the statistics enumerated above that the financial burden is not really so crushing as a superficial inspection might lead one to suppose. Indeed, the expenditure is almost insignificant on the scale by which governmental expenditures are habitually measured at the present time.

Airway Field System and Investment

Discussion of the Type and Cost of Airdromes
Required on Public Passenger Air Transport Service

By Archibald Blair

In the course of our studies of commercial air transportation we have found it necessary to consider means and methods of providing suitable station landing fields and emergency landing provisions. This short note describes a system which we have worked out and here submit to regard as the most generally suitable for the operation of commercial airplane lines.

Isolated Station Fields

The system is presented as by airways to date consists of the use of isolated station fields. When engine or other trouble necessitates a landing between stations the pilot makes use of any clear plot of ground without regard to its ownership. The question of damage is adjusted later with the property owners, who as a rule have been very liberal so far on account of the novelty of the airplane. This is quite obviously a temporary condition. We have had considerable discussion regarding the advisability of government ownership of landing fields which have, either occasionally, been reserved to highways, although the railroad would be a more logical agency. Such government ownership would be a matter of dispute between municipal, county, state and federal authority and we doubt very much if it is feasible to get all together in one comprehensive system. Even if this arrangement could be systematized, it would probably leave unsettled the vital question of emergency landing spaces.

The necessity of a railroad completely controlling its own right of way is accepted without question. A parallel condition is found in the necessity for complete control of station and emergency landing fields by the company operating an airway on anything like a comprehensive scale. In the case of some other only a single plot suitable for a landing field is available. Although the owner of the land who has not come into close contact with the matter, this has been found to be a fact. In such cases the method of what might be called the station field is of vital importance to the transportation line operating in the vicinity of the station.

From time to time the transport companies will be put to the irreparable necessity of seeking forced landings between the station fields. Telephone lines, power wires, ditches and other obstructions, not to mention the existence of obstructions to traffic, eliminate the possibility of using public roads for this purpose. If such landings are continued to be made, as at present, on private property not controlled by the operating company legal action will be the owner's remedy of damages will be inevitable as soon as the novelty wears off. To this point (particular) lawsuits are added to those which will necessarily be brought to prevent just cause the total cost may become very serious. Air transport will soon become a business as public utilities and a tendency exists among a service class to expect public service corporations to contribute price in courts of law. This is a point worth keeping in mind.

Emergency Fields

All of the above points to the necessity of the transport line providing not only its station landing fields but the emergency emergency landing rights as well. The emergency landing fields being generally located in open country where ground is cheap, they might as well be specially set aside for this purpose instead of any attempt being made to use the same as pasture or for other uses. Clear air rights belong equally to all when landing with a stalled engine. In either case the fields must be owned by a holding company and used for the transport line or simply leased for a long period from the owners at a price the company recommended by the author consists of a holding company, under the same control as the transport company, and owning outright such

of the station fields, all of the land property thereon as well as a series of emergency runways along the airway.

Each runway should be sufficiently close to each other to keep the company's runways always within driving distance of one another, or of a station field when flying at 5000 to 6000 ft. above the level of the ground. This would necessitate a chain of landing runways such about 25 miles apart along the route. These runways need not, in any state of the world, be landing fields but simply long narrow plots generally of 1/2 to 3/4 mile and just large enough for a well landed pilot to be able to bring his machine down safely in case of engine failure or other emergency. The same portion of the runways would be graded to nearly level while the ends would be slightly banked to decrease the possibility of running over the property lines. No doubt a more satisfactory method of shortening the landing run will be developed later, but in any case the runways need be better made to make a safe landing possible. Each plot would be supplied with a small shed containing gasoline, oil, first aid kit, lanterns, a few important spare parts such as tires and spark plugs, emergency fuel oil and a few other necessities. The property should be located in good agricultural or farming potential areas, the trees planted thick and white alternated to be clearly visible from the air, and running open places where emergency landings could be made. The runways should also be provided "Where night flying is to be done the necessary guiding equipment should be included.

Type of Landing Fields

In order to keep the necessary investment as low as a minimum all ground should be used to the very best advantage both in the emergency runways and the station fields particularly the latter. The complete question of best utilization of the land is left to those who have and will be discussing the disposal of surplus lands. It values to say here that a plot about 2000 ft. by 2000 ft., if properly situated, is suitable for the station field. The present recommendation is that the field of this type is about 1/2 mile by 1/2 mile. It is to be noted that the disposal arrangement makes it possible to provide two crossed runways each about 3000 ft. long extending the side of the field in each 2000 ft. by 2000 ft. plot. It is to be noted that it is advisable to have extra space on the 2000 ft. plot to allow for outside obstructions as well as for expansion of the plot. When the purchase of the plot is being negotiated a strong effort should be made to place it as a corner or parcel, some restrictions upon the height of structures on the adjacent property. A restriction limiting the height of structures to about 100 feet over these distances from the landing field is very desirable.

The necessity of having station fields so near the air as practicable and as proximity to a good road and in the rail road plot will probably bring the cost of this property to between \$10,000 and \$25,000 per acre. The plot of \$12,500 per acre for this class of property can probably be taken as a reasonable average although it should be kept in mind that this will assume equality of the plot is close to one of the larger cities. In this case the 2000 x 2000 plot would cost about \$25,000. As matters stand at present it is possible to use larger plots of this type for \$12,500 to \$15,000 per acre because a less little value for other than this form are not improved. However such rental is to be set against a fair return on the value of the property as this condition would be expected to hold after landing fields become usual. Providing a cross return of 7 per cent of the value the rentals of the plot would be about \$9,000 per acre.

It is possible to reduce the cost of the station field by using L plots instead of square. The L type however, somewhat

limits expansion of the plot in addition to limiting the take-off direction and should therefore be considered only where property cost runs higher than usual or where funds are more limited. Expense incident during taking off would accumulate landing on the adjacent runway with this type of field and the system field is in every way to be preferred.

Maximum Ground Cost

The maximum ground cost is reached by using an L plot having each leg 3500 ft. long by 700 ft. wide. A field of this size, while practicable, is not advisable and where the L field is desired one should be at least the one recommended by the Air Service for this type, 1500 ft. by 600 ft. per leg. If possible the size should be increased to 2000 ft. by 1000 ft. per leg. On the basis of cost of \$12,500 per acre and rental of 7 per cent these fields would cost as follows: 2000 x 750, rental \$7,500; total, \$20,000; 1500 x 1000 field, cost \$6,250, 750, rental, \$3,750; total, \$10,000; 1000 x 1500 field, cost \$3,125, 750, rental, \$3,125; total, \$6,250. The saving in ground cost by using the L field is considerable but this must be balanced against its other disadvantages.

In the case of the emergency runways along the airways there is no limit on the purchase or rental of some ground

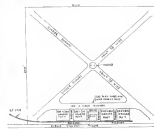


Fig. 1. Square station field

than that actually required for landing from four points of the compass. Indeed where winds are generally from the same direction, as may sometimes be the case, it will not be necessary to provide two long narrow runways. The limited area for emergency landing runways can be used by a narrow leg L or X plot. Each leg would be from 1500 to 1500 ft. long by 200 to 250 ft. wide. 200 ft. or more is more adequate than 200 ft. but should not be less than 200 ft. deep tracks which is another advantage of the runway system. The runway should be slightly banked at the end of each runway to decrease the possibility of running over the property line when effecting a landing. Surrounding property should be so restricted as to building heights so will avoid future structures interfering with the use of the runways.

Each emergency runway being located generally in open country there should be no need for building close to the actual runway and it should be possible to make the restriction a condition of the purchase or rental. The further down the cost of the property and the more the property is used for emergency stop short of the 3/4 mile connecting with the public roadway and need have no railroad connection. Even if such flying is contemplated it is of great importance that the field be close to electric power lines as other types of guide

lights, such as aerobeacons, can be used. It is of some importance to have telephone connection so that there may be an available field when a forced landing is made.

Fig. 2 shows the proposed arrangement of emergency runways of this type. It should be understood that the runways given are to be regarded as the minimum and that they should be increased some where the ground cost and funds available permit. Taking as the average size an L plot having each leg 1500 ft. long by 300 ft. wide, the total ground required will be about 3 acres. Located in open country, as such runways will generally be, this ground will cost \$300 to \$500 per acre as it falls within the class of farm property. Each emergency runway plot would thus cost on the average about \$1500. Based on the basis of 7 per cent gross revenue to the company, the annual rental would be \$150. It should be noted here that some of the emergency runways may be located fairly close to cities or small towns, in which case these figures would be increased.

Two Terminal Airways

To provide a basis for determining the additional cost of ground required for airway purposes using the proposed emergency runway system has specific purposes are considered



Fig. 2. Emergency runway

The maximum distance between station fields is taken to be about 400 miles while the maximum distance between emergency runways is taken to be about 25 miles on this project. Fig. 3 shows two complete airway systems, one connecting New York with Cleveland and Chicago, the other connecting New York, Washington, Charlotte, Atlanta, New Orleans, Houston, Birmingham (optional), Tampa and Mexico City. The last "jump" calls for about 1000 miles and might require special equipment. It is however an important leg of the system, offering considerable saving of time over railroad connections. The first system is one with heavy express and passenger traffic to drive against and where speed is of great importance but with the disadvantage that on the other hand it runs into direct competition with the best railroad service in the country. The second system would have less traffic to drive against but it would offer a greater number of stops and a more direct service with a poorer railroad service than the first. Another feature is worthy of mention also. The last system would be forced to submit its passenger traffic against the more conservative business route of New York and Chicago who would have to use the new method of travel. The second system would have a more direct route close to drive upon and this would probably go a long way to balance the smaller express package business available of the line.

Vigilance Committee Warns Investors

Reports on Promoters Efforts to Sell Stock in Aircraft Schemes

In other instances, procedures have forwarded their plans for reporting public information from its source by the same method of trading upon the commodity spot market, rather than to provide critical sites and franchises that were then on the air transportation map, and instead, the use of some less fortunate civil city. This may lead to the development of a "perpetual committee" of the Chamber of Commerce to work for the coming of ships of the air, a form of propaganda which amounts to endorsement. With reference to the local press, this provides the "best" news which reporters agree will read in when stock-selling time is over, so it is inevitably done.

Furthermore, an honest non-participatory politician, from the viewpoint of citizens, would presumably be considered as the extremely opportunist class until there is adequate Federal legislation regulating elected office. No such legislation exists now and until it is enacted the public had best refrain from attempting there is some warning. The enthusiasm and energy which Chambers of Commerce may devote to putting their candidates "in the air" may find other and more profitable uses, through obtaining the plans of the candidate prior to election, and then making use of the inside information to make a profit in the stock market and real estate. It is desirable that nonpartisan staffs be in leading fields for public use but they should be wary of extending extreme promises to stock future schemes.

Commercial aviation—the great new development in transportation—is being put forward soundly by men of experience in aeronautics and the automotive industry who have their feet on the ground. It should not be presented in terms of a means by which masses of fanatical schemes may justify themselves at the expense of a public whose identification and enthusiasm for a marvelous development make them easy victims for persons of predatory inclinations.

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Revised — By reporting doubtful schemes to the National Vigilance Committee, 134 West 90th Street, New York City

Col. M. Fuku, Col. T. Arizuka, Maj. T. Watanabe and Maj. N. Taniguchi, of the Imperial Japanese Army, recently were guests of the Commanding Officer of Mitchell Field, Maj. W. R. Warner, and made an inspection of the post.

At the present time there are 257 students entered in the various courses of the Air Service Mechanics School at Chanute Field, Kansas, 23. The majority of these men were enlisted in the recent recruiting campaign. A total of 313 men are now awaiting instruction, and within a week sixty of these will be placed in school. The remainder will be undergoing instruction within four months.

Government attention has a bright future in America. But a future which must be realized by the same, clear-headed men in industry and finance. There is no need to rush into serious waste. It means public confidence and belief in sustained hopes of prospective investors. Wholesalers who would sell huge masses of stock without making sense to the investing public that it takes a long shaman on such sales goes to the underdeveloped field of air-travel are certain to see already the development of the industry.

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Boer Nation Window

WILSON'S BIKER MEMBERS: Art Hall, Fred
 Jones, Thomas P. Lee, Fred J. Smith, Sam A.
 Gable, R. Schaefer, and Dennis H. Adams. Second
 Row: Raymond J. Poirer, chairman.
 Third Row: Fred J. Smith, president; Fred J.
 Smith, treasurer and riding; Fred J. Smith, all time
 record holder.
 Fourth Row: Fred J. Smith, president; Fred J.
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 record holder.
 Fifth Row: Fred J. Smith, president; Fred J.
 Smith, treasurer and riding; Fred J. Smith, all time
 record holder.
 Sixth Row: Fred J. Smith, president; Fred J.
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 Seventh Row: Fred J. Smith, president; Fred J.
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 Eighth Row: Fred J. Smith, president; Fred J.
 Smith, treasurer and riding; Fred J. Smith, all time
 record holder.
 Ninth Row: Fred J. Smith, president; Fred J.
 Smith, treasurer and riding; Fred J. Smith, all time
 record holder.
 Tenth Row: Fred J. Smith, president; Fred J.
 Smith, treasurer and riding; Fred J. Smith, all time
 record holder.

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members of Japanese colonies may establish the
repute of a public whose education and
moral development under their own vast
predatory instincts.

—R. R. R. (redundant public and
supra to an important, prominent school
and more reputable publications are ac-

—B. S. (forcing the advice
"Before you Invest—Investigate")

—R. R. R. (redundant public and
supra to an important, prominent school
and more reputable publications are ac-

138 West 90th Street, New York City

These Officers Visit Mitchell Field

Col. T. Arisaka, Maj. T. Watanabe and

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factory claim to promote some of famous designers. Each promoter may even offer, of course, the usual complimentary and passenger services. Then, however, it should be remembered that the bulk of the cost of the service is being borne by the passengers. Periodicals like the *Moniteur* and the *City of New York* had a real effect on the market.

the Imperial Japanese Army, presently in the hands of the United States, is a fine study in the art of deception. It is a masterpiece of the post-war era.

The Mechanics School in Full Scale is a new school where 257 students returned in 1951. The school is a fine example of the art of deception. It is a masterpiece of the post-war era.

The Mechanics School in Full Scale is a new school where 257 students returned in 1951. The school is a fine example of the art of deception. It is a masterpiece of the post-war era.

Foreign News

France

It is reported that among the extensions planned by French air lines companies during the coming year is that by the Compagnie Messageries Aériennes of their London-Paris service to Marseilles. At present Paris is not linked up by air to the south of France, travelers having to proceed to Toulouse by train. If the new line is established it should make a very considerable reduction in the time taken to get to the Riviera via Marseilles. It may also link up with the Latécoère lines to Morocco.

Great Britain

Tests of fuel tanks entered for the Air Ministry competition for safety tanks for aircraft commenced at the Royal Aircraft Establishment, Farnborough, on Dec. 5, and will continue thereafter on alternate days until the tests have been completed. The object of the competition, for which prizes amounting to £2,000 are being offered, to obtain, if possible, a tank which will withstand the shock to which it may be subjected in an airplane crash without either bursting or leaking, and thus eliminate almost entirely the possibility of fire in such circumstances, and which will also withstand the effect of enemy action by machine gun and shell fire. Improvements in design and inspection have already practically removed the danger of fire from internal causes during flight, and the satisfactory solution of the present problem will mean further substantial progress. The competition, which, owing to its importance, was thrown open to all the world, has brought in twenty-six entries—nineteen from Great Britain, three from France, and one each from America, Belgium, Italy and Japan. Three prizes will be awarded, the first being £1,400, the second £400 and the third £200.

An experiment was recently carried out at Farnborough by the staff of the Royal Aircraft Establishment to discover if a parachute would ensure safety to an airplane pilot in the event of a spinning nose dive. A Camel biplane was detached, nose downward, from an observation balloon at a height of some 2,000 ft., and when half-way to the ground a weight bearing a parachute broke away from the plane. The altitude apparently was not enough, for the parachute did not expand until it had nearly reached the ground, and it landed with some violence. Further experiments are to be tried under slightly different conditions.

Spain

The Spanish Air Traffic Co. of Madrid has bought two Fokker airplanes of the latest type. These will be put into regular service on an air line between Sevilla, Spain, and El Arish (Larache) Morocco. The distance between these points is 170 miles and includes the crossing of the Strait of Gibraltar. This line, which also carries Spanish mails, was recently opened with much ceremony, including a blessing of the machines by the Bishop of Sevilla.

Argentina

The Ministry of War has ordered that on each landing field belonging to the Government and under said Ministry, a visual signal is to be painted consisting of one, two or three capitals placed in the center of the field. The upper part of these capital letters will face the north. The letters will be painted as if each one was surrounded by the lines of a rectangle of 20 by 10 m. Each letter will have a width of 3 m.

The military airdromes will have a horizontal band three meters in width on the lower part of the letters right across the same. The letters may be made either out of brick, wood, or any other material, and should be inset in the ground so that they will not mean the slightest obstacle for the taxiing of the airplanes; also they will be whitened with lime, in order to be able to distinguish them from high up.

Civil airplanes will not be allowed to land on fields where military airdromes are located without previous authorization or, in case of serious trouble, when permission will be requested from the air by given signs.



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